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Feature Article

Screening, brief intervention, and referral to treatment (SBIRT) education of residential care nursing staff: Impact on staff and residents

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ABSTRACT

Approximately 40% of older adults drink alcohol. Older adults living in community care residences are a vulnerable population at risk for alcohol use related problems especially for those age 65 years and older who are taking medications, have health problems, and have risky alcohol consumption. Screening, brief intervention, and referral to treatment (SBIRT) is an evidence-based approach for individuals at risk for alcohol use disorders. A quality improvement project evaluated SBIRT education effects on nursing staff knowledge and attitudes related to alcohol use, and resident alcohol use. The staffs' SBIRT knowledge and alcohol related attitudes increased significantly. The staff documented SBIRT intervention 231 times in three months' post training.

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Introduction

The United States Census Bureau (2011) reported 40.3 million Americans were 65 years old or older in 2010, making this age group one of the largest sectors of society.¹ The projected population of people aged 65 years and older is expected to increase to 88.5 million by 2050.² These population increases in the 65 years and older age group are going to have a significant impact on the health care and personal care systems in the United States (U.S.). For example, in the U.S., there were 22,200 residential care communities in 2012.³ A significant proportion of the U.S. population will be living in some sort of residential care community in the near future. In 2012, the daily-use rate for residential care communities was 15 per 1000 adults aged 65 years and older.³ This represents approximately 713,300 Americans aged 65 years or older living in residential care communities.³ Care at residential facilities was provided by 278,600 nursing full time equivalents (FTEs) employees.³ The nursing workforce is the largest and most trusted sector of the healthcare industry.⁴ Therefore, nurses are

ideally situated to impact care for thousands of older adults living in residential care communities.

Alcohol consumption is an important aspect of care that nurses can address because approximately forty percent of adults age 65 years and older drink alcohol.⁵ The National Institute on Alcohol Abuse and Alcoholism (NIAAA) recommends that adults aged 65 years and older limit their alcohol consumption to no more than three drinks per day and seven drinks per week.⁶ Older adults with health problems, taking certain medications, and those who are drinking heavily are at risk for further health problems from alcohol use.⁶ Older adults have increased sensitivity to alcohol due to lower tolerance and increased onset of action than when they were younger.⁶ These changes are due to age related decreases in ethanol metabolism by alcohol and acetaldehyde dehydrogenase and cytochrome P-450E1.⁷ Additionally, ethanol blood concentration increases with age as water distribution volume decreases.⁷ Many age-related problems including hypertension, diabetes, heart failure, liver disease, osteoporosis, memory problems, and mood disorders may be worsened by heavy alcohol use.⁶ Unique alcohol-related issues for older adults translate into a significant need for alcohol use assessment and intervention.

Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an evidence-based approach to reduce at-risk alcohol use. McCance–Katz and Satterfield define SBIRT as a comprehensive, integrated public health approach to the delivery of early intervention for persons with substance use disorders or who are at risk of developing a disorder.⁸ SBIRT was

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utilized by the Florida BRITE (Brief Intervention and Treatment of Elders) Project by staff from 29 agencies at 75 sites across 18 counties in Florida.⁹ Schonfeld, Hazlet, Hedgecock, Duchene, Burns, and Gum report results of SBIRT by the Florida BRITE project that included 8165 older adults that screened positive for substance use; while 4797 (58.7%) had significant reductions in alcohol use at six month follow-ups in adults age 55 years and older.⁹ SBIRT encompasses both screening and brief intervention as well referral to treatment as needed.¹² Moore and colleagues used the Comorbidity Alcohol Risk Evaluation Tool (CARET), a validated screening tool to identify at-risk drinkers in adults aged ≥ 55 years.¹⁰ They compared at-risk drinkers who received a primary care-based intervention with those who received a booklet on healthy behaviors. They found fewer intervention group participants were at-risk drinkers (odds ratio 0.41; 95% confidence interval 0.22–0.99) at 3 months, reported drinking fewer drinks in the past 7 days (odds ratio 0.79; 95% confidence interval 0.70–0.91), less heavy drinking (four or more drinks in one day) (odds ratio 0.46; 95% confidence interval 0.22–0.99), and lower risk scores (rate ratio 0.87; 95% confidence interval 0.76–0.99). At 12 months the difference in the number of drinks between the intervention and control groups remained statistically significant (rate ratio 0.87; 95% confidence interval 0.76–0.99).¹⁰

The U.S. Preventive Services Task Force (USPSTF) in 2018 “recommends screening for unhealthy alcohol use in primary care settings in adults 18 years or older... and providing persons engaged in risky or hazardous drinking with brief behavior counseling interventions to reduce unhealthy alcohol use.”¹¹ This is a Grade B Recommendation. SBIRT is an ideal approach to use for the USPSTF recommendation. SBIRT reinforces low risk behaviors in those abstaining or using alcohol at low levels, provides interventions for individuals with at-risk alcohol use defined by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) as more than three drinks per day and seven drinks per week,⁶ and referrals can be made for those with more serious alcohol abuse problems.¹¹ The Affordable Care Act (ACA) includes 15 covered services for adults.¹³ Screening for at-risk alcohol use and counseling are covered preventive services.¹³ Scarcity of health care professional education and training in SBIRT is a barrier to increasing the access to medically indicated, evidence-based alcohol use interventions under the Affordable Care Act.¹⁴

Furthermore, older adults are at risk for mild cognitive impairment as a result of the aging process. Clinicians should consider mild cognitive impairment during the assessment process.¹⁵ Mild cognitive impairment is described as an intermediate stage in the range from normal cognitive function to dementia.¹⁶ Mild cognitive impairment does not prohibit screening for alcohol use. Randall-James et al. found that older adults with cognitive impairment were able to complete alcohol screening tools with assistance.¹⁷

Another important consideration when caring for older adults is readmission rates and care coordination. The Centers for Medicare & Medicaid Services use 30-day readmission rates as outcome measures for patients with acute myocardial infarction, heart failure, and pneumonia.¹⁸ Chavez and colleagues found pre-hospitalization high risk drinking in Veterans Affairs patients, age 65 years and older was modestly associated with risk for 30-day readmissions leading to increased health care utilization and costs.¹⁹

Because care for older adults is unique with complex medical considerations, screening for alcohol consumption to determine implications upon medical status for logical intervention should likely be regarded as a routine process during care in any setting. Therefore, the purpose of this project was to educate the nursing staff at a personal care home to screen adults age 65 years and older for alcohol use, provide a brief intervention for those that screen moderately positive, and refer for treatment as indicated using the SBIRT model. It was anticipated that the training program would improve nursing attitudes related to alcohol use and alcohol problems and decrease alcohol use or risk among residents. The impact of this training program on nursing attitudes and resident behaviors was explored.

Methods

Setting

The project setting was a personal care home in suburban, southwestern Pennsylvania. The facility was selected based on the nurse manager’s request for the development of a nursing in-service program to educate the nursing staff about alcohol use in older adults.

Sample

The entire nursing staff sample was recruited, based upon voluntary participation, from all nursing personnel employed at the personal care home from June 2016 to August 2016. The total number of nursing staff varied over the three-month training due to staff turnover. There were 65 nursing personnel at the time of recruitment.

The older adult resident sample was recruited, based upon voluntary participation, from all residents living in the personal care home from May 2016 to November 2016. There are 64 rooms with an average census of 55–59 residents.

The University of Pittsburgh Institutional Review Board (IRB) determined that this project was a quality improvement project that did not need IRB review and approval. Approval to conduct this project with staff and residents was obtained from the Quality Improvement (QI) Committee at the residential care facility.

Intervention

The SBIRT educational in-service program for the nursing staff included a twenty-minute PowerPoint presentation and ten minutes of case study discussion based on the SBIRT training manual developed at the University of Pittsburgh School of Nursing. Content for the didactic portion included a standardized alcohol assessment, review of the risks associated with alcohol misuse, screening with the three item Alcohol Use Identification Test (AUDIT)-C screen, and motivational interviewing techniques for brief interventions. Two case studies were utilized. Alcohol use screening and brief intervention training was standardized by following the Centers for Disease Control and Prevention’s SBIRT implementation guide.²⁰ Booster sessions were conducted four to eight weeks after the initial training during the shift crossover report. The booster sessions included a brief review of SBIRT, questions and discussions generated by the staff, support for utilization of SBIRT, and documentation of SBIRT in the electronic health record.

Measures

A demographic survey, SBIRT knowledge survey, and Alcohol and Alcohol Problems Perceptions Questionnaire (AAPPQ) were administered to nursing staff pre-training. The SBIRT knowledge survey and AAPPQ were administered again immediately post-training.

Nursing staff’s knowledge of SBIRT was measured using the eight question SBIRT screening knowledge survey and the ten question SBIRT brief intervention knowledge survey developed by the SBIRT research team at the University of Pittsburgh School of Nursing using the consensus of expert opinion to adapt established surveys for this setting.

Nursing staff’s attitudes toward patients with alcohol use problems was assessed with the Alcohol and Alcohol Problems Perceptions Questionnaire (AAPPQ), a 30-item, validated Likert scale with six subscales that include role adequacy, role legitimacy, role support, motivation, task-specific self-esteem, and work satisfaction.²¹ Cronbach’s alpha range for the AAPPQ is 0.70–0.90.²²

To measure the implementation rates of SBIRT post-training, the question “Did you speak to the resident about SBIRT today?” was

added to the electronic health record. Results were documented by the nursing staff on the daylight and evening shifts.

Resident alcohol consumption was measured using the Alcohol Use Disorders Identification Test (AUDIT), a 10-items validated scale to assess three domains: alcohol intake, alcohol dependence, and adverse consequences. The AUDIT's Cronbach's alpha equals 0.80.²³ A demographic survey and AUDIT survey were administered to residents before the staff training began and the AUDIT survey repeated three months after the staff training was completed.

Data analysis

Data distributions were visually inspected with respect to the assumptions of the statistical tests utilized. Nursing scores on the pre and post AAPPQ and SBIRT knowledge scores were analyzed with *T*-tests. The resident AUDIT data was not normally distributed; therefore, the Wilcoxon Signed Ranks tests were used to compare pre/post AUDIT scores. Significance levels were set to $p < 0.05$. SPSS Version 24 was utilized to perform all data analyses.

Results

Nursing staff

The nursing staff who participated in the SBIRT education included 7 males (12.3%) and 48 females (85.7%), who ranged in age between 19 years and 75 years, with a mean age of 39.79 years. Only those staff that completed the pre- and post-assessment were included in the data analysis. The majority had direct care responsibility 48/56 (85.7%). Their years in nursing ranged for 0–41 years with a mean of 12.89 years (See Table 1. Nursing Staff Demographics).

The nursing staff's SBIRT screening knowledge scores increased from a mean of 3.05 pre-training to a mean of 4.76 post-training ($p < 0.01$). The SBIRT brief intervention knowledge scores increased from a mean of 6.09 pre-training to a mean of 7.50 post-training ($p < 0.01$) (See Table 2. Nursing Staff SBIRT Knowledge).

The nursing staff's Alcohol and Alcohol Problems Perceptions Questionnaire (AAPPQ) scores increased significantly from pre-training to post-training for role adequacy ($p = 0.014$), role legitimacy ($p = 0.001$), and role support ($p = 0.014$). Their work satisfaction scores increased from pre-training to post-training to a lesser degree with an improvement that was statistically significant ($p = 0.049$).

Table 1
Nursing staff demographics.

Variable	M(SD)
Years in nursing	12.89 (10.614)
Age	39.79 (14.987)
Gender	N (%)
Female	48 (85.7)
Male	7 (12.3)
Race	
Black/AA	10 (17.9)
Asian	2 (3.6)
White	37 (66.1)
Unknown	2 (3.6)
More than one	4 (7.1)
Certification (CNA/LPN)	
Yes	26 (46.4)
No	27 (48.2)
Highest education	
No HS diploma or equivalent	2 (3.6)
HS diploma or equivalent	18 (32.1)
Some college, no degree	22 (39.3)
Associate's degree	9 (16.1)
Bachelor's degree	4 (7.1)

Motivation and task-specific self-esteem scores were not significant (See Table 3. Nursing Staff Alcohol and Alcohol Problems Perception Questionnaire).

Affirmative documentation of alcohol discussion with the resident during the three months post-training occurred a total of 231 times, 35 times during the daylight shifts and 196 times during the evening shifts.

Residents

Screening of 40 residents before the SBIRT training included 7 males and 33 females with a mean age of 84.77 years. Eight residents were not available due to hospitalization, discharge, or death for post-SBIRT screening.

The residents' AUDIT scores ranged from zero to six. Their scores decreased from a mean of 1.34 pre-training to a mean of 1.09 post-training ($p = 0.33$) with 32 residents included. Of these 32 residents, 15 residents had AUDIT scores of zero before and after training, which indicates no alcohol consumption in the past year. For residents with an AUDIT score of greater than zero, scores ranged from one to six ($n = 17$), the pre-training mean was 2.18 with a decrease post-training to a mean of 1.94 ($p = 0.25$).

Discussion

Prior to this study, the extent of alcohol use and alcohol related problems in this specific personal care facility for older adults was unknown. The Florida BRITE Project included 29 agencies at 75 sites⁹ but did not specifically report on alcohol use by older adults living in personal care facilities. They reported a 58.7% reduction in alcohol use after SBIRT.⁹ We were interested in the impact of SBIRT education at a personal care facility where alcohol use is not prohibited. Alcohol use can affect both the residents and the nursing staff who are required to provide care for residents experiencing adverse effects of alcohol use. After review of the literature on alcohol use and the related problems in similar populations, it was anticipated that implementation of an SBIRT program would mitigate both alcohol use and adverse effects. In a recent meta-analysis, it has been shown that interventions involving nurses were the most effective.²⁴ An SBIRT educational program for the nursing staff was successfully implemented in this facility. Despite the approved availability and access to alcohol, consumption by this particular population was low and the anticipated alcohol related problems were rare. Resident AUDIT scores before and after the nursing staff SBIRT training indicated low risk drinking on average, with mean scores < 7 . Nearly half of the residents surveyed reported zero alcohol consumption in the past year. This was similar to the forty percent of adults age 65 years and older who drink alcohol that was reported by the National Institute on Alcohol Abuse and Alcoholism.⁵ When removing those individuals with a pre-training AUDIT score of zero from the analysis, those indicating no alcohol consumption, the mean AUDIT scores remained at low risk levels indicating that even for those who did consume alcohol, their overall risk for health problems related to alcohol use was low. Substance Abuse and Mental Health Services Administration (SAMHSA) reports that for older adults who drink alcohol, less than two drinks per day are consumed and alcohol is consumed on less than a dozen days per month.²⁵ This is consistent with our findings. While no statistically significant reduction in AUDIT scores occurred, a trend showed reduced AUDIT scores after training the nursing staff.

The attitudes and training of the nursing staff were central to the effectiveness of the intervention. Nursing attitudes were assessed by questionnaire before and after training. Despite the time required for training, nursing attitudes indicated an improved confidence in their role in dealing with potentially problematic alcohol use. The nursing staff's mean attitudes scores toward working with persons with

Table 2
Nursing staff SBIRT knowledge.

Staff knowledge results n = 56				
	Pre-training mean (SD)SD	Post-training mean (SD)SD	t(55)	p value
Screening knowledge	3.05 (1.20)	4.76 (1.79)	6.31	<0.01 **
Brief intervention knowledge	6.09 (1.60)	7.50 (2.37)	3.92	<0.01 **

** $p < 0.01$.

Table 3
Nursing staff alcohol and alcohol problems perception questionnaire (AAPPQ).

Staff AAPPQ results n = 56				
	Pre-training mean (SD)	Post-training mean (SD)	t(47)	p value
Role adequacy	3.41 (0.74)	3.67 (0.67)	-2.56	0.014*
Role legitimacy	3.16 (0.77)	3.53 (0.64)	-3.65	0.001**
Role support	3.33 (0.80)	3.58 (0.62)	-2.54	0.014*
Motivation	3.16 (0.53)	3.22 (0.48)	-0.73	0.469
Task-specific self-esteem	3.32 (0.61)	3.31 (0.62)	0.17	0.865
Work satisfaction	3.07 (0.65)	3.22 (0.72)	-2.02	0.049*

* $p < 0.05$.

** $p < 0.001$.

alcohol and alcohol problems increased for the three role related subscales ($p < 0.05$) indicating incorporation of SBIRT into their role as nursing assistants and licensed practical nurses. Role adequacy (having adequate knowledge and skills in working with patients who use alcohol), role legitimacy (having the right to work with patients who use alcohol), and role support (the extent to which one feels supported in his or her work with patients who use alcohol).²⁶ The anecdotal feedback from the staff indicated that they were more comfortable talking with the residents about alcohol use, felt that it was appropriate in their nursing role, and felt supported by their supervisors after the training. The improvement in work satisfaction ($p < 0.05$) is especially important because work satisfaction frequently decreases when an additional task is added. Motivation and task-specific self-esteem scores were not changed significantly with training indicating, perhaps, a need for additional training.

The discussion of alcohol use was documented five times more frequently on the evening shift compared with the day shift. This may be site specific related to the staffing levels. Discussion of alcohol use may have been facilitated by the availability of alcohol during the evening meals at this facility.

Limitations

Limitations to generalization to a larger population include a convenience sample of residents and nursing staff. No specific interventions for alcohol use were documented in the electronic health record. Only the discussions of alcohol were documented. No conclusion can be drawn between the discussion of alcohol and alcohol use among the residents. The nursing staff had different levels of training and varied in their years of nursing work. The modest sample size limited our ability to control the analysis for demographic factors.

Conclusion

Alcohol use by older adults is associated with multiple adverse effects. Older adults living in person care homes are a vulnerable population at risk for alcohol use related problems especially for those age 65 years and older who are taking medications, have health problems, and have risky alcohol consumption. Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an evidence-based, low cost program that can be used by nursing personnel to provide needed alcohol use care to this underserved population for which the

numbers of treatment programs for older adults has not met the growing needs.¹⁴ SBIRT efficiently provides identification and intervention for risky alcohol use in older adults, a problem that is expected to increase as the population of older adults is projected to more than double in the next 40 years.²

Nursing staff at a suburban Pittsburgh personal care home were trained in SBIRT for alcohol use in older adult residents. This quality improvement project shows that training of nursing staff in SBIRT may provide benefit to both staff and residents. Knowledge of screening and brief intervention increased significantly. The staffs' attitudes related to alcohol and alcohol problems increased significantly in role adequacy, role legitimacy, and role support. Work satisfaction score increased slightly and was statistically significant. Importantly, it should be noted that SBIRT training did not decrease their work satisfaction. Additionally, the staff documented their change of practice in the electronic health record, with 231 documentations of SBIRT discussions with residents in the three-month period post-training. Further research is needed to determine the impact of SBIRT training of nursing staff caring for older adults living in personnel care homes.

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Conflicts of interest

The authors have no declarations of interest.

References

1. United States Census Bureau. *Census Shows 65 and Older Population Growing Faster Than Total U.S. Population*. 2010. https://www.census.gov/newsroom/releases/archives/2010_census/cb11-cn192.html. Accessed 12 June 2018. 2011.
2. Vincent GK, Velkoff VA. *The Next Four Decades, the Older Population in the United States: 2010 to 2050*, Current Population Reports, P25-1138, U.S. Census Bureau, Washington, DC. 2010. <https://www.census.gov/prod/2010pubs/p25-1138.pdf>. Accessed 12 June 2018.
3. Harris-Kojetin L, Sengupta M, Park-Lee E, Valverde R. Long-term care services in the United States: 2013 overview. National Center for Health Statistics *Vital Health Stat*. 2013;3(37). http://www.cdc.gov/nchs/data/nsltcp/long_term_care_services_2013.pdf. Accessed 12 June 2018.
4. Gallup, Inc. *Americans Rate Healthcare Providers High on Honesty, Ethics*. Gallup.com; 2016. <http://news.gallup.com/poll/200057/americans-rate-healthcare-providers-high-honesty-ethics.aspx>. Accessed 12 June 2018.

5. Alcohol & Your Health, Special Population, Older Adults. National Institute on Alcohol Abuse and Alcoholism, 2015. <http://www.niaaa.nih.gov/alcohol-health/special-populations-co-occurring-disorders/older-adults>. Accessed 18 May 2015.
6. Alcohol & Your Health, Special Population, Older Adults. National Institute on Alcohol Abuse and Alcoholism, 2017. <http://www.niaaa.nih.gov/alcohol-health/special-populations-co-occurring-disorders/older-adults>. Accessed 12 Jun 2017.
7. Meier P, Seitz, Age HK. Alcohol metabolism and liver disease. *Curr Opin Clin Nutr Metabol Care*. 2008;11(1):21–26. <https://doi.org/10.1097/MCO.0b013e3282f30564>.
8. McCance-Katz EF, Satterfield J. SBIRT. A key to integrate prevention and treatment of substance abuse in primary care. *Am J Addict*. 2012;21(2):176–177. <https://doi.org/10.1111/j.1521-0391.2011.00213>.
9. Schonfeld L, Hazlett RW, Hedgecock DK, Duchene DM, Burns LV, Gum AM. Screening, brief intervention, and referral to intervention for older adults with substance misuse. *Am J Public Health*. 2015;105(1):205–211. <https://doi.org/10.2105/AJPH.2013.301859>.
10. Moore AA, Blow FC, Hoffing M, et al. Primary care based intervention to reduce at-risk drinking in older adults: a randomized controlled Trial. *Addiction*. 2011;106(1):111–120. <https://doi.org/10.1111/j.1360-0443.2010.03229>.
11. U.S. Preventive Services Task Force. *Unhealthy Alcohol Use in Adolescents and Adults: Screening and Behavioral Interventions*. 2018. <https://www.uspreventiveservices-taskforce.org/Page/Document/UpdateSummaryFinal/unhealthy-alcohol-use-in-adolescents-and-adults-screening-and-behavioral-counseling-interventions>. Accessed 9 January 2019.
12. Agerwala SM, McCance-Katz EF. Integrating screening, brief intervention, and referral to treatment (SBIRT) into clinical practice settings: a brief review. *J Psychoactive Drugs*. 2012;44(4):307–317. <https://doi.org/10.1080/02791072.2012.720169>.
13. U.S. Department of Health and Human Services. *Assistant Secretary for Public Affairs (ASPA). About the Affordable Care Act*. Health Care; 2014. <https://www.hhs.gov/healthcare/about-the-aca/index.html>. Accessed 2017.
14. Ghitza UE, Tai B. Challenges and opportunities for integrating preventive substance-care services in primary care through the Affordable Care Act. *J Health Care Poor Underserved*. 2014;25(1A):36–45. <https://doi.org/10.1353/hpu.2014.0067>.
15. Wadd S, Randall J, Thacke A, Edwards K, McCabe L, Coleman A. Alcohol misuse and cognitive impairment in older people. *Alcohol Insights*. 2013;110. <http://alcoholresearchuk.org/alcohol-insights/alcohol-misuse-and-cognitive-impairment-in-older-people-an-exploratory-study/>. Accessed 3 August 2018.
16. Roberts R, Knopman DS. Classification and epidemiology of MCI. *Clin Geriatr Med*. 2013;29(4):753–772. <https://doi.org/10.1016/j.cger.2013.07.003>.
17. Randall-James J, Wadd S, Edwards K, Thake A. Alcohol screening in people with cognitive impairment: an exploratory study. *J Dual Diagn*. 2014;11(1):65–74. <https://doi.org/10.1080/15504263.2014.992095>.
18. Centers for Medicare & Medicaid Services. *Hospital Quality Initiative Outcome Measures*. 2015. <https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/hospitalqualityunits/outcomemeasures.html>. Accessed 2017.
19. Chavez LJ, Liu CF, Tefft N, et al. Unhealthy alcohol use in older adults: association with readmissions and emergency department use in the 30 days after hospital discharge. *Drug Alcohol Depend*. 2016;158(1):94–101. <https://doi.org/10.1016/j.drugalcdep.2015.11.008>.
20. Centers for Disease Control and Prevention. *Planning and Implementing Screening and Brief Intervention for Risky Alcohol Use: A Step-By-Step Guide for Primary Care Practices*. Atlanta, Georgia: Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities; 2014.
21. Shaw S, Cartwright A, Spratley T, Harwin J. *Responding to Drinking Problems*. London: Croom Helm; 1978.
22. Cartwright AK. The attitudes of helping agents towards the alcoholic client: the influence of experience, support, training, and self-esteem. *Addiction*. 1980;75(4):413–431. <https://doi.org/10.1111/j.1360-0443.1980.tb01406.x>.
23. de Meneses-Gaya C, Zuardi AW, Loureiro SR, Crippa JAS. Alcohol use disorders identification test (AUDIT): an updated systematic review of psychometric properties. *Psychol Neurosci*. 2009;2(1):83–97. <https://doi.org/10.3922/j.psns.2009.1.12>.
24. Platt L, Melendez-Torres GJ, O'Donnell A, et al. How effective are brief interventions in reducing alcohol consumption: do the setting, practitioner group and content matter? Finding from a systematic review and metaregression analysis. *Br Med J Open*. 2016;6: e011473. <https://doi.org/10.1136/bmjopen-2016-011473>.
25. Substance Abuse and Mental Health Services Administration. *The CBHSQ Report, A Day in the Life of Older Adults: Substance Use Facts*, 2017. https://www.samhsa.gov/data/sites/default/files/report_2792/ShortReport-2792.html. Accessed 2019.
26. Anderson P, Clement S. The AAPPQ revisited: measurement of general practitioners attitudes to alcohol problems. *Br J Addict*. 1987;82:753–759.